INTERNATIONAL SEARCH REPORT

International Application No PCT/JP2004/011713

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 H01L33/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols) $\begin{tabular}{ll} IPC & 7 & H01L \end{tabular}$

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMI	ENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	
X Y A	EP 1 198 016 A (LUMILEDS LIGHTING U.S., LLC) 17 April 2002 (2002-04-17) paragraph '0012! - paragraph '0023!; figures 1-4	1,5,6, 10-13, 22-26 2-4,7-9, 14-18 19-21, 27,28	
X Y A	US 2002/185965 A1 (COLLINS WILLIAM DAVID ET AL) 12 December 2002 (2002-12-12) paragraph '0016! - paragraph '0025!; figures 3-5	1,5,6, 10-13, 22-26 2-4,7-9, 14-18 19-21, 27,28	

Further documents are listed in the continuation of box C.	χ Patent family members are listed in annex.	
Special categories of cited documents: 'A' document defining the general state of the art which is not considered to be of particular relevance 'E' earlier document but published on or after the international filing date 'L' document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) 'O' document referring to an oral disclosure, use, exhibition or other means 'P' document published prior to the international filing date but later than the priority date claimed	 "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "&" document member of the same patent family 	
Date of the actual completion of the international search 6 April 2005	Date of mailing of the international search report 21/04/2005	
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo ni, Fax: (+31-70) 340-3016	Authorized officer Krause, J	

INTERNATIONAL SEARCH REPORT

International Application No
PCT/JP2004/011713

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT					
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.			
X A	EP 1 020 935 A (MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD; MATSUSHITA ELECTRONICS CORPOR) 19 July 2000 (2000-07-19) paragraph '0047! - paragraph '0073!; figures 1a,3b	1,5,6, 10-13, 22-26 2-4,7-9, 14-21, 27,28			
Υ	DE 44 22 660 A1 (MITSUBISHI KASEI CORP., TOKIO/TOKYO, JP) 9 February 1995 (1995-02-09) column 2, line 52 - column 5, line 45; figures 1,3	2-4,7-9			
Y	DE 100 39 435 A1 (OSRAM OPTO SEMICONDUCTORS GMBH & CO. OHG) 28 February 2002 (2002-02-28) paragraph '0057! - paragraph '0098!; figures 3,5-10	14-18			
Y	PATENT ABSTRACTS OF JAPAN vol. 1999, no. 01, 29 January 1999 (1999-01-29) -& JP 10 270801 A (SHARP CORP), 9 October 1998 (1998-10-09) abstract	14-18			

1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No PCT/JP2004/011713

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1198016 A	17-04-2002	US 6650044 B1 EP 1198016 A2 JP 2002185048 A US 2004097006 A1	18-11-2003 17-04-2002 28-06-2002 20-05-2004
US 2002185965 A	1 12-12-2002	DE 10225778 A1 JP 2003110153 A TW 552724 B	03-04-2003 11-04-2003 11-09-2003
EP 1020935 A	19-07-2000	JP 2000208822 A EP 1020935 A2 KR 2000053441 A TW 497275 B US 6696704 B1 US 2002028527 A1	28-07-2000 19-07-2000 25-08-2000 01-08-2002 24-02-2004 07-03-2002
DE 4422660 A	1 09-02-1995	JP 7022646 A GB 2280061 A	24-01-1995 18-01-1995
DE 10039435 A	1 28-02-2002	NONE	
JP 10270801 A	09-10-1998	NONE	